

EXHIBIT A

Janaize Markland

SUPERIOR COURT OF THE STATE OF CALIFORNIA

IN AND FOR COUNTY OF SACRAMENTO

Coordinating Proceedings,)

)

Special Title (CRC 3.550))

)

) JCCP 4853

)

BUTTE FIRE CASES)

)

)

VIDEOTAPED DEPOSITION OF JANAIZE MARKLAND

Sacramento, California

Monday, October 15, 2018

Volume I

Reported by:

Danielle D. Cruzat

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PAGES 1 - 171

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866 299-5127

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1 Have you seen this document before?

2 A. Can I take a look?

3 Q. Sure.

4 A. Yes, I have.

5 Q. And it's a declaration you prepared, true? 01:07:51PM

6 A. Correct.

7 Q. And you signed it under penalty of perjury?

8 A. I did.

9 Q. So it's true and correct with regard to

10 your background as an employee of Pacific Gas & 01:08:01PM

11 Electric in paragraph 1?

12 A. That is correct.

13 Q. You are currently the director of PG&E's

14 Enterprise and Operational Risk and Insurance

15 Department? 01:08:15PM

16 A. Correct.

17 Q. Is that sometimes referred to as EORM?

18 A. Yes. The process is enterprise and

19 operational risk management. And that is the

20 acronym to describe that process. That is one part 01:08:25PM

21 of my function at the company. The other is

22 insurance.

23 Q. Are you the E -- what's referred to as the

24 EORM principal?

25 A. I am not. 01:08:35PM

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1 Q. Who was your current immediate supervisor?

2 A. Stephen Cairns, chief risk officer.

3 Q. In paragraph 2 of your declaration, it says

4 that, The enterprise and operational risk and

5 insurance department is responsible for overseeing 01:09:55PM

6 PG&E's enterprise and operational risk management,

7 paren, EORM process, and purchasing insurance

8 coverage for the company.

9 A. That is correct.

10 Q. Is that essentially your job duties? 01:10:07PM

11 A. It is. Those are.

12 Q. It also says, The department has

13 established an overall risk management framework and

14 process for providing oversight of the company's

15 most important risks. 01:10:20PM

16 Do you oversee that process?

17 A. I oversee the framework and the oversight

18 process. I oversee the oversight process.

19 Q. Okay. And did you do that in 2015?

20 A. I believe so, yes. Yes, I did. 01:10:31PM

21 Q. It also says, This includes providing

22 standards and procedures for identifying,

23 evaluating, managing, and tracking risks, and

24 establishing and facilitating the management

25 governance forums for overseeing progress for all 01:10:46PM

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1 top risks across all lines of business.

2 A. That's an accurate statement.

3 Q. Okay. And what that part of your job?

4 A. Yes. It's part of my department's job, I
5 will say, to clarify. 01:11:03PM

6 Q. And -- and I want to know specifically, is
7 that something you also do, those tasks? Do you
8 participate in those tasks?

9 A. I participate from an oversight point of
10 view. So I oversee the department that implements 01:11:13PM
11 the standards and procedures within the lines of
12 business.

13 Q. Okay.

14 MR. CAMPORA: Your Honor, you want a copy?

15 THE REFEREE: Yeah. 01:11:35PM

16 MR. CAMPORA: Can you mark that, please,
17 Madam Reporter.

18 THE WITNESS: Are we done with this?

19 MR. CAMPORA: Yes, ma'am.

20 MR. TAYBACK: 2031?

21 MR. CAMPORA: Yes.

22 MR. TAYBACK: It's not been previously
23 marked?

24 MR. CAMPORA: As far as I know it has not.

25 ///

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1 (Exhibit 2031 was marked for identification
2 and is attached hereto.)

3 THE WITNESS: Thank you.

4 BY MR. CAMPORA:

5 Q. We have marked as Exhibit 2031 a utility 01:12:03PM
6 procedure, RISK-500 -- 5001P-01.

7 Are you familiar with this document?

8 A. I am.

9 Q. It says the target audience is PG&E
10 Corporation and Pacific Gas & Electric Company, 01:12:17PM
11 together, PG&E, employees who lead or oversee risk
12 management activities.

13 Are you part of the target audience?

14 A. Can I just take a minute to review?

15 Q. Absolutely. 01:12:32PM

16 MR. TAYBACK: I'm going to interpose an
17 objection just to this document, because I don't
18 know whether it was produced in connection with the
19 Butte fires. But I'm going to guess that the Bates
20 label of this document indicates North Bay fires. 01:12:47PM
21 And I -- although I don't have the protective order
22 from that case --

23 MR. CAMPORA: It's not marked confidential.

24 MR. TAYBACK: I just don't know. So I'm
25 interposing an objection until I -- so I can find 01:12:56PM

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1 out the answer.

2 MR. CAMPORA: That's fine. It's not marked
3 confidential.

4 MR. TAYBACK: Okay. I will take your word
5 for it.

01:13:03PM

6 THE WITNESS: Okay. So this -- this
7 document is written by our department to outline the
8 roles and responsibilities relative to the
9 enterprise and operational risk management program.

10 The target audience is primarily risk

01:14:19PM

11 managers in the line of business. However, our
12 role -- our department has a role in that we help
13 facilitate the process. So both -- all roles are
14 discussed within the document.

15 BY MR. CAMPORA:

01:14:33PM

16 Q. Okay. I'm interested in page 8 of 10.

17 MR. TAYBACK: With the Bates stamp ending
18 in 0 -- 051?

19 MR. CAMPORA: Correct.

20 THE WITNESS: Okay.

01:14:47PM

21 BY MR. CAMPORA:

22 Q. You see where there is a definition of
23 "residual risk"?

24 A. Yes.

25 Q. Is there a difference between "residual

01:14:55PM

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1 risk" and "risk tolerance"? And it is used in PG&E?

2 A. There is a difference. Yes.

3 Q. Okay. What's the difference between

4 risk -- the "residual risk" and "risk tolerance"?

5 A. So residual risk is our best understanding 01:15:10PM

6 of what the risk level currently is with its

7 existing controls in place and functioning as

8 intended. So it's today's risk.

9 Q. Okay. What's "risk tolerance"?

10 A. "Risk tolerance" is a two -- is more of a 01:15:25PM

11 concept than a target. It is at some point where

12 will the company feel comfortable that the risk is

13 well managed, to paraphrase. There is a number

14 of --

15 Q. Have you ever -- 01:15:43PM

16 A. -- uses for that definition.

17 Q. Have you ever seen a definition of "risk

18 tolerance" that's used at PG&E?

19 A. Not at PG&E. No. It's something we are

20 trying to work through as part of a 01:15:53PM

21 commission-initiated discussion, as part of safety

22 model and assessment proceedings, or SMAP,

23 workshops.

24 Q. That started in 2012, right?

25 A. It started in 2012 with the Clannon letter. 01:16:07PM

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1 and then a rate case process, OIR, order instituting
2 rulemaking, which introduced two new -- two new, I
3 guess, filings related to our general rate cases.

4 And those filings are the safety model and
5 assessment proceeding and the risk assessment
6 mitigation phase, also known as SMAP and RAMP,
7 respectively.

01:16:25PM

8 Q. Okay. And as of today, some six years
9 later, PG&E doesn't yet have a definition for "risk
10 tolerance"?

01:16:36PM

11 A. We do not. The SMAP discussions are
12 just -- the first set of SMAP discussions are just
13 concluding, and the commissions first decision on
14 those is due before the end of the year. It's gone
15 longer than anyone has expected. It's a difficult
16 topic.

01:16:48PM

17 MR. CAMPORA: In that order, please.

18 (Discussion held off the record.)

19 (Exhibits 2032 through 2034 were marked for
20 identification and are attached hereto.)

01:17:56PM

21 MR. TAYBACK: Please tell me quickly the
22 order you have them in.

23 MR. CAMPORA: I have them in -- the first
24 two pages of Pacific --

25 MR. TAYBACK: Got it.

01:18:00PM

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1 MR. CAMPORA: -- Gas & Electric Company
2 Safety Model Assessment. The second page is the
3 qualifications. And the third document is the
4 section of prepared testimony.

5 THE WITNESS: Oh, I see. 01:18:11PM

6 MR. CAMPORA: Chapter 2.

7 THE WITNESS: A logical flow.

8 BY MR. CAMPORA:

9 Q. Okay. So -- and this is a document that's,
10 I don't know, a hundred and 50 or 60 pages long in 01:18:21PM
11 total. And I didn't mark it -- print it all out.
12 I'm just going to ask you some questions about the
13 sections that identifies as having been written by
14 you.

15 A. Yes. 01:18:30PM

16 Q. Okay. So the first document, the first --
17 in front of you is Exhibit Number -- what's the
18 number on the --

19 MR. TAYBACK: 2032.

20 BY MR. CAMPORA: 01:18:39PM

21 Q. 2032. That is the first page -- cover
22 page. And the second page, which has the table of
23 contents, which identifies the areas that you wrote,
24 which is Number 2, Company-Wide Models and
25 Approaches for Assessing Risk, correct?

01:18:50PM

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1 A. Yes.

2 Q. And Number 6, Risk Lexicon. You wrote that
3 as well, correct?

4 A. Correct. I believe so.

5 Q. And then 2033 is a statement of your 01:18:58PM
6 qualifications, correct?

7 A. It looks a little dated. But yes.

8 Q. Well, it was as of 2015?

9 A. Yeah.

10 Q. It was accurate in 2015? 01:19:12PM

11 MR. TAYBACK: That's a question.

12 THE WITNESS: Oh, sorry. Yes, it was
13 accurate as of 2015. I'm sorry. I was reading it.

14 BY MR. CAMPORA:

15 Q. Was this testimony part of a rate case? 01:19:21PM

16 A. My guess is it was as part of -- my guess
17 is, yes, it was. We do similar rate case statements
18 of qualifications for general rate case and other
19 documents that we provide.

20 Q. Can you tell by looking at the front, the 01:19:35PM
21 application 15-05, U 39 M, does that refresh your
22 recollection?

23 A. Where am I? Sorry.

24 Q. On the front of 2032 in the upper left-hand
25 corner. 01:19:48PM

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1 A. U 39 M?

2 Q. Yeah.

3 A. No, it doesn't.

4 Q. Okay. In paragraph A2 says -- I'm quoting

5 you now, I'm the director of PG&E's enterprise and 01:19:59PM

6 operational risk and insurance department, correct?

7 A. Correct.

8 Q. My department is responsible for overseeing

9 PG&E's enterprise and operational risk management,

10 paren, EROM [sic], close paren, program? 01:20:12PM

11 A. EORM, yes.

12 Q. Okay. And for procuring insurance to

13 transfer PG&E's residual financial risks that could

14 result from catastrophic property or casualty

15 losses. 01:20:27PM

16 Did I read that accurately?

17 A. You did.

18 Q. As part of PG&E's plan in risk mitigation

19 to transfer risks?

20 MR. TAYBACK: Object to the form of the 01:20:35PM

21 question.

22 BY MR. CAMPORA:

23 Q. Do you understand my question?

24 A. I don't. Sorry.

25 Q. Well, you say you are transferring PG&E's 01:20:39PM

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1 residual financial risk. And what that means is I
2 assume that you are buying insurance so that if
3 there is a loss, PG&E's insurance companies will pay
4 it instead of PG&E.

5 A. There is a -- in terms of the ISO 15 -- 01:20:50PM
6 sorry, 31000 standard for risk management. There
7 are different mechanisms for risk treatment, risk
8 transfer is one of the defined terms. And so it is
9 typically used to address insurance.

10 Q. Right. So you are transferring the risk 01:21:04PM
11 from PG&E to the insurance companies?

12 A. We are buying insurance to cover our risks.

13 Q. Okay. But it doesn't lessen the risk to
14 the public, true?

15 A. It does not -- 01:21:14PM

16 MR. TAYBACK: Objection. Vague as to
17 "lessen."

18 BY MR. CAMPORA:

19 Q. You understand my question? If it says
20 there is a risk that could result from catastrophic 01:21:19PM
21 property or casualty loss, the same risk exists to
22 the public after you buy the insurance as existed
23 before, right?

24 A. Yes.

25 Q. Okay. Could you look at 2034, please. 01:21:29PM

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1 A. Okay.

2 Q. I'm looking at page 2-2 -- well, first of
3 all, this section, which is -- the text part of it
4 really is 2-1 through 2-14.

5 A. Okay. 01:21:56PM

6 Q. Do you see that?

7 A. I see the numbers 2-1-2- -- through 2-14.

8 Q. Well, I'm just going to ask you if that's
9 something you wrote, those pages.

10 A. Let me read them. 01:22:20PM

11 MR. GIMPLE: Mr. Campora, could you do me
12 the favor of just reminding me what is 2034? I have
13 the other two.

14 MR. CAMPORA: It's the prepared testimony,
15 Chapter 2. 01:23:29PM

16 MR. GIMPLE: Got it. Thank you.

17 THE WITNESS: I believe so. Yes. And it
18 does reflect a somewhat outdated process. We have
19 evolved our program since then. But, yes.

20 BY MR. CAMPORA: 01:23:38PM

21 Q. But this was a description of the program
22 as is it existed in May of 2015, correct?

23 A. Yes. Uh-huh.

24 Q. And you were trying to be true and accurate
25 when you wrote it? 01:23:46PM

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1 A. I was. Yes.

2 Q. If you go to page 2-2, it says -- refers --

3 refers to People and Processes, and it says,

4 Personnel, PG&E's enterprise and operational risk

5 management department resides in the chief risk 01:24:02PM

6 officer organization.

7 What is the chief risk officer

8 organization?

9 A. What is it?

10 Q. Yes. 01:24:13PM

11 A. It's a department within PG&E.

12 Q. Is it still a department within PG&E?

13 A. It is.

14 Q. Who is the chief risk officer?

15 A. Stephen Cairns. 01:24:19PM

16 Q. And -- and before that it was?

17 A. Anil Suri.

18 Q. And it reports to the CRO. Who is the CRO?

19 A. The chief risk officer.

20 Q. Okay. And the CRO reports to PG&E's chief 01:24:29PM

21 financial officer, correct?

22 A. That is correct.

23 Q. Who was the chief financial officer in

24 2015?

25 A. We have had some turnover there as well. 01:24:38PM

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1 measures?

2 A. The board is not an approval body.

3 Q. Okay.

4 A. It's information.

5 Q. The -- the board of directors? 01:40:20PM

6 A. The committee of the board doesn't approve
7 mitigations. They oversee the progress.

8 Q. Okay. My question is this: Have you ever
9 seen a presentation made to the board of directors
10 as a whole with regard to approval of the mitigation 01:40:32PM
11 measures for wildfire?

12 A. To the board as a whole?

13 Q. Yes.

14 A. I don't recall.

15 Q. Okay. Let's go to page 2 point -- 2-12. 01:40:40PM

16 In the second sentence here, you describe
17 PG&E's program to manage wildfire risk, which you
18 describe is an award-winning vegetation management
19 program with equipment retrofits in high-risk areas
20 and enhanced -- enhanced inspections. 01:41:10PM

21 Do you see that? Second -- second sentence
22 of the first paragraph under Risk Tolerance.

23 A. I'm sorry -- sorry. The second paragraph?

24 Q. Second sentence of the first paragraph
25 under Risk Tolerance. 01:41:24PM

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1 CPUC?

2 A. You are asking me a question that I don't
3 remember.

4 Q. Okay.

5 A. Yeah, I don't remember. 01:43:13PM

6 Q. This says --

7 A. But it sounds reasonable.

8 Q. This says, As a result, tree-related

9 outages are in the neighborhood of 17 per thousand

10 miles. 01:43:20PM

11 First of all, what is a tree-related

12 outage?

13 A. So if a branch touches a conductor, we can

14 receive a momentary interruption of service, and

15 that would be considered a tree-related outage. 01:43:33PM

16 Q. Okay. So if a branch falls into a

17 conductor and breaks the conductor, that would be a

18 tree-related outage, right?

19 A. I believe so. Yes.

20 Q. If a tree falls in as a whole into a 01:43:40PM

21 conductor, that's a tree-related outage, right?

22 A. That sounds reasonable.

23 Q. If a tree grows into the line and causes an

24 outage, that would be tree-related, right?

25 A. Sounds reasonable. 01:43:50PM

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1 Q. Okay. And at this time, after the program,
2 it's your understanding that as of May of 2015, PG&E
3 was having in the neighborhood of 17 tree-related
4 outages per thousand miles of line, correct?

5 A. So this was going off memory of the Tree 01:44:06PM
6 Line USA survey that I had previously mentioned.
7 And it was more intended to illustrate a point of
8 the risk tolerance discussion that we're having at
9 the safety and enforcement division-sponsored
10 workshops as part of the SMAP proceeding. 01:44:22PM

11 Q. Ma'am, you reported to the CPUC that PG&E's
12 program had resulted in the neighborhood of 17
13 tree-related outages per thousand miles, true?

14 A. In the neighborhood --

15 MR. TAYBACK: Object to the form. 01:44:36PM
16 Objection to the extent that mischaracterizes this
17 testimony.

18 You can answer.

19 THE WITNESS: In -- in the neighborhood of.

20 So an estimate. 01:44:42PM

21 BY MR. CAMPORA:

22 Q. Okay. Then you said --

23 A. It's not intended to be a specific exact
24 number.

25 Q. Then you said, There is a two percent or 01:44:46PM

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1 less than two percent of trees in contact, correct?

2 A. That's what it says.

3 Q. Trees in contact means trees growing into

4 the line, right?

5 A. That definition is more related to 01:44:57PM

6 tree-related outages, I believe.

7 Q. Okay. Well, then what is a tree in

8 contact?

9 A. When a tree hits the conductor, as we just

10 discussed in the previous examples you provided. 01:45:08PM

11 Q. Okay. So you think that the tree-related

12 outages is the same as trees in contact?

13 A. I do believe so.

14 Q. Then it says, And there are a small number

15 of wildfires caused by PG&E equipment. 01:45:20PM

16 Do you see that?

17 A. I do see that.

18 Q. What's a small number of wildfires?

19 A. I don't -- can't recall off the top of my

20 head. I don't know what the number is, other than 01:45:29PM

21 it is publicly-disclosed number that we report to

22 the CPUC on an annual basis. If I'm to go off

23 memory, it's in the neighborhood of 250.

24 MR. CAMPORA: Mark those two as next,

25 please. In that order. 01:45:43PM

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1 (Exhibits 2035 and 2036 were marked for
2 identification and are attached hereto.)

3 (Discussion held off the record.)

4 THE WITNESS: I don't have my glasses with
5 me.

6 MR. TAYBACK: Are you going to ask her to
7 read this?

8 MR. CAMPORA: Nope. I --

9 THE WITNESS: Oh, good. Thank you.

10 MR. CAMPORA: This is how PG&E produces it
11 to me.

12 MR. TAYBACK: I understand. But I just --
13 I am just asking if you're asking her to read it or
14 not.

15 MR. CAMPORA: I brought -- brought them 01:46:32PM
16 both because I wanted to blow it up for the second
17 one.

18 I'm sorry. Your Honor, do you want a copy?

19 THE REFEREE: If you got one.

20 MR. CAMPORA: Here. 01:46:42PM

21 (Discussion held off the record.)

22 THE REFEREE: Thank you.

23 MR. GIMPLE: Mr. Campora, will you be
24 identifying what it is you are marking, please?

25 MR. CAMPORA: I will be. 01:46:57PM

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1 MR. GIMPLE: Thank you.

2 MR. CAMPORA: It is a document produced by

3 PG&E. It's NBF0000039191, Electric Trans --

4 Electric T&D, S-2 Offsite Discussion, September 13,

5 2016.

01:47:14PM

6 MR. TAYBACK: Mr. Campora, I will register

7 the same objection I made before to the NBF --

8 MR. CAMPORA: You got it.

9 MR. TAYBACK: -- use of the documents.

10 MR. CAMPORA: It's not also confidential.

01:47:20PM

11 MR. TAYBACK: I understand. I'm going to

12 take your word for it and let you ask questions. I

13 just -- I'm just going to interpose an objection to

14 preserve it.

15 BY MR. CAMPORA:

01:47:27PM

16 Q. I'll represent to you this is a document

17 that was produced as a PowerPoint done by Mr. Hogan.

18 A. Okay.

19 Q. And I want you to look at the page I blew

20 up, which is -- I printed the first page -- the

01:47:33PM

21 first -- the first exhibit just to show you the

22 cover sheet. And that page is page 21.

23 A. I see.

24 Q. I didn't produce all 21 pages. And then I

25 blew page 21 up.

01:47:50PM

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1 A. Okay.

2 Q. And that second exhibit is page 21, blown
3 up.

4 Do you see that?

5 A. I see that. 01:47:52PM

6 Q. And it says Fire Ignition.

7 Do you see that?

8 A. I do.

9 Q. And it says, Definition and Calculation,
10 The number of power line-involved fire incidents 01:47:59PM
11 annually reportable to the CPUC per decision
12 14-02-015.

13 Did I read that accurately?

14 A. I think so. Yes.

15 Q. A reportable fire incident includes all of 01:48:12PM
16 the following: One, the ignition is associated with
17 PG&E power lines; and, two, something other than
18 PG&E facilities burned; and, three, the resulting
19 fire traveled more than one meter from the ignition
20 point. 01:48:29PM

21 Do you see that?

22 A. I do.

23 Q. Are you familiar with that definition?

24 A. Sounds familiar.

25 Q. Okay. If you look at the performance, 2015 01:48:34PM

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1 EOY, that means end of year, right?

2 A. Yes.

3 Q. Actual, 434. Do you see that, number of

4 fires?

5 A. I do. 01:48:46PM

6 Q. Okay. Were you aware of that in 2015?

7 A. I -- I'm not part of the S-2 discussions.

8 Q. I understand.

9 A. So I haven't seen this slide before.

10 Q. I understand. 01:48:53PM

11 But were you aware of the number of fires

12 for 2015 was 434?

13 A. I was not.

14 Q. Is that a few wildfires to you?

15 MR. TAYBACK: Objection. Argumentative. 01:49:04PM

16 You can answer.

17 THE WITNESS: I don't think I've ever

18 referred to it as few.

19 BY MR. CAMPORA:

20 Q. Well, would you refer to 434 wildfires as a 01:49:09PM

21 few wildfires?

22 MR. TAYBACK: Objection to the extent "few"

23 is not a word she ever used.

24 MR. DE GHETALDI: Try a small number.

25 BY MR. CAMPORA: 01:49:22PM

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1 Q. I mean small number. I'm sorry.
2 Is that a small number of wildfires?
3 A. It depends I guess on the context of what
4 you are asking.
5 Q. I'm asking about safety to the public. 01:49:26PM
6 A. In general? Less than a meter or within a
7 meter of the ignition point?
8 Q. No. We have to read it. It has to go more
9 than a meter --
10 A. More than a meter? 01:49:34PM
11 Q. -- to be reported.
12 So it's fire that went more than a meter
13 away.
14 434 fires that -- where ignition was
15 associated with PG&E power lines, it was something 01:49:41PM
16 other than PG&E facilities burned, and the resulting
17 fire traveled more than one meter from the ignition
18 point.
19 A. I don't really have an opinion whether it's
20 few or not. I don't know if -- 01:49:54PM
21 Q. What about a small number?
22 A. -- what's expected.
23 It seems like a small number.
24 Q. So if you --
25 A. As opposed to 4,000, it would be smaller. 01:50:01PM

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1 So I don't know --

2 Q. Well --

3 A. -- in the context of that.

4 Q. -- when you said "a small number" in your

5 testimony, did you think of that as a -- did you 01:50:10PM

6 have a number in mind?

7 A. I did not.

8 Q. Sitting here today, you don't know whether

9 you believe 434 is a small number or not?

10 A. I don't. 01:50:21PM

11 Q. The next sentence says, It may be possible

12 to drive tree-related outages to less than 17 per

13 thousand miles or to have less than two percent of

14 trees in contact, but that would require a level of

15 investment greater than what PG&E is making today. 01:50:38PM

16 Was that a true statement when you made it?

17 A. It was a true statement.

18 Q. Okay. It says, With limited resources,

19 PG&E cannot do everything and must decide at what

20 point it's okay not to mitigate the risk further. 01:50:51PM

21 Tradeoff decisions must be made.

22 Did I read that accurately?

23 A. That is a true statement.

24 Q. Okay. What's a tradeoff decision?

25 A. So a tradeoff decision has to do with at 01:51:03PM

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1 what point can you reduce risk further and at what
2 cost.

3 Q. Okay.

4 A. And does it make more sense to reduce risk
5 in another area in terms of your ability to reduce 01:51:14PM
6 it further, faster, more effectively than one area.

7 So these are multidimensional business
8 decisions that need to be made.

9 Q. Okay. Who makes the tradeoff decisions?

10 A. The -- not me. So. . . 01:51:27PM

11 Q. So who is it?

12 A. I don't know. It's part of the S-2
13 discussions. It's part of the integrated planning
14 process. There is a budget and budgeting process
15 that I'm not involved in. 01:51:37PM

16 Q. Okay. So sitting here today, you don't
17 know who makes the decision as to whether the risk
18 should be reduced further or they -- either spend
19 the money to reduce the risk further or not?

20 A. So I can tell you in the context of 01:51:47PM
21 wildfire, we have spent more money every single year
22 to reduce the risk further.

23 MR. CAMPORA: Move to strike as
24 nonresponsive.

25 BY MR. CAMPORA: 01:51:51PM

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Janaize Markland

1 Q. Who makes the tradeoff decisions with
2 regard to -- you just referenced right here, PG&E
3 cannot do everything and must decide at what point
4 it's okay not to mitigate the risk further.

5 Tradeoff decisions must be made. 01:52:06PM

6 MR. TAYBACK: Objection. Asked and
7 answered. Lack of foundation.

8 You can answer.

9 THE WITNESS: It's not me.

10 BY MR. CAMPORA: 01:52:12PM

11 Q. Okay.

12 A. It's part of the integrated planning
13 process where the budget decisions are made. And
14 I'm not aware of a single individual who makes those
15 tradeoff decisions. 01:52:19PM

16 Q. Who approves the budget decisions?

17 A. I don't know.

18 Q. Do you know if it's the board of directors?

19 A. I don't know.

20 Q. Do you know if PG&E does -- does some kind 01:52:25PM

21 of study to see, for example, what the average cost
22 to a consumer would be to reduce the wildfire risk
23 further?

24 A. I don't know.

25 Q. Do you know if they have done a study to 01:52:34PM

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Janaize Markland

1 see how much dividends would have to be reduced to
2 reduce the wildfire risk further?

3 MR. TAYBACK: I'm going to object. Vague
4 as to time.

5 THE WITNESS: I don't know. 01:52:42PM

6 BY MR. CAMPORA:

7 Q. In 2015.

8 A. I don't know.

9 Q. Do you know if anybody did a study to see
10 how it would affect earnings per share? 01:52:46PM

11 A. I don't know.

12 Q. You agree that they are making tradeoff
13 decisions -- somebody is making a conscious decision
14 as to whether to spend that money or not, right?

15 A. So I'm not -- in the sentence suggesting 01:52:57PM
16 that those tradeoff decisions are being made, it was
17 more of a you can't do everything, you have to make
18 tradeoffs. But I was not specifically aware of a
19 specific tradeoff decision that was being made at
20 the time. 01:53:10PM

21 Q. Well, you were telling the CPUC that PG&E
22 was making tradeoff decisions, right?

23 A. This is a --

24 MR. TAYBACK: Objection. Misstates her
25 testimony. 01:53:16PM

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Janaize Markland

1 You can answer.

2 THE WITNESS: Okay. I was going to say,
3 this is conversational. It says it must be made.
4 It does not say they are being made.

5 BY MR. CAMPORA: 01:53:20PM

6 Q. Do you see a difference?

7 A. I do.

8 Q. Okay. Then it says, For example,
9 additional investment in managing wildfire risk
10 requires that consumer's either pay more or accept 01:53:33PM
11 higher risk in another area.

12 Did I read that accurately?

13 A. You did.

14 Q. Was that a true statement when you wrote
15 it? 01:53:43PM

16 A. Yes.

17 Q. Okay. Did anybody consult with the
18 customers as to whether or not they are willing to
19 pay more?

20 MR. TAYBACK: Objection. Vague and 01:53:51PM
21 argumentative.

22 You can answer the question.

23 THE WITNESS: The generally rate case
24 process is intended to provide that opportunity.

25 BY MR. CAMPORA: 01:53:57PM

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Janaize Markland

1 Q. To your knowledge, did anybody put anything
2 out in a bill, a flyer that says, We have this fire
3 risk. We are accepting a small number of wildfires
4 every year, but we can reduce it further if you are
5 willing to pay more. 01:54:08PM

6 A. I don't know.

7 Q. Was there ever -- you saw following San
8 Bruno that PG&E put out commercials trying to
9 upgrade their image.

10 Are you aware of that? 01:54:15PM

11 A. I -- so I don't have television. So I have
12 never seen the commercials.

13 Q. Okay. All right.

14 To your knowledge, did anybody ever put out
15 a commercial to advise the public, Listen, we 01:54:23PM
16 are -- we are accepting a residual risk on wildfire.
17 You need to be aware of that?

18 A. Not that I'm aware of.

19 Q. In Amador, do you know if they ever gave
20 any information specifically to the people in Amador 01:54:33PM
21 County or Calaveras County that they were accepting
22 a risk of wildfire --

23 A. Not that I'm aware of.

24 Q. -- as a tradeoff?

25 A. Not that I'm aware of. 01:54:43PM

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PACIFIC GAS AND ELECTRIC COMPANY
STATEMENT OF QUALIFICATIONS OF JANAIZE MARKLAND

Q 1 Please state your name and business address.

A 1 My name is Janaize Markland, and my business address is Pacific Gas and Electric Company, 111 Stony Circle, Santa Rosa, California.

Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company (PG&E).

A 2 I am the director of PG&E's Enterprise and Operational Risk and Insurance Department. My department is responsible for overseeing PG&E's Enterprise and Operational Risk Management (EORM) Program and for procuring insurance to transfer PG&E's residual financial risks that could result from catastrophic property or casualty losses.

Q 3 Please summarize your educational and professional background.

A 3 I earned a bachelor of science degree in chemistry from the University of British Columbia and a master of science degree in Environmental Management from Royal Roads University in Victoria, British Columbia.

I am a member of the Enterprise Risk Management Utilities Roundtable and serve as chair of the Edison Electric Institute Enterprise Risk Management Task Force Steering Committee.

Prior to my career in the EORM and Insurance Department, I held a variety of roles at PG&E, including manager of Compliance and Ethics and positions in the Safety and Shared Services organization, where I provided direct environmental compliance support to PG&E's operating units. Before joining PG&E, I worked at BC TEL, a telephone utility based in Burnaby, British Columbia, and its successor company, Alberta-based TELUS Corporation, where I developed an environmental program governing the newly merged companies.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following testimony in PG&E's S-MAP proceeding:

- Chapter 2, "Companywide Models and Approaches for Assessing Risk."
- Chapter 6, "Risk Lexicon."

Q 5 Does this conclude your statement of qualifications?

A 5 Yes, it does.

JM-1

Exhibit 2033

J. MARKLAND

10/15/18

Danielle D. Cruzat
CSR No. 13650

Application: 15-05-xxx
(U 39 M)
Exhibit No.: _____
Date: May 1, 2015
Witness(es): Various

PACIFIC GAS AND ELECTRIC COMPANY
SAFETY MODEL ASSESSMENT PROCEEDING
PREPARED TESTIMONY

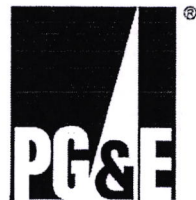


Exhibit 2034

J. MARKLAND

10/15/18

Danielle D. Cruzat
CSR No. 13650

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 2
COMPANYWIDE MODELS AND APPROACHES FOR
ASSESSING RISK

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 2
COMPANYWIDE MODELS AND APPROACHES FOR ASSESSING RISK

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1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **CHAPTER 2**
3 **COMPANYWIDE MODELS AND APPROACHES FOR ASSESSING**
4 **RISK**

5 **A. Introduction**

6 Pacific Gas and Electric Company's (PG&E) goal is to deliver safe, reliable
7 and affordable gas and electric service to the millions of homes and businesses
8 that depend on us. Numerous operational risks affect the provision of gas and
9 electric service, including natural hazards such as seismic activity and wildfires.
10 Although risk cannot be eliminated, PG&E is committed to managing these risks
11 and taking all reasonable measures to provide gas and electric service to our
12 customers in a way that protects the safety of the public and our employees.

13 This chapter describes the progress PG&E has made in implementing an
14 industry-leading Enterprise and Operational Risk Management (EORM) Program
15 since 2011. It also includes a description of the EORM process, including an
16 in-depth look at PG&E's Risk Evaluation Tool (RET) that is used to assess and
17 rank risks across PG&E. This chapter concludes with an assessment of where
18 PG&E is compared to other companies in the industry and a look at current
19 challenges and future areas for improvement.

20 **B. EORM Program Overview**

21 PG&E's program is based on International Standards Organization-31000
22 principles and is squarely focused on providing an in-depth analysis of the
23 enterprise and operational risks inherent in our business, the current state of
24 controls around those risks, and the options for mitigating them further.

25 PG&E's EORM Program includes a robust governance structure, standard
26 criteria and tools for assessing Company risks, dedicated resources within the
27 Chief Risk Officer's (CRO) organization and within all PG&E's lines of business
28 (LOB), defined mechanisms for cross-company collaboration, active
29 management of LOB-specific risk registers, and integration with PG&E's
30 Integrated Planning Process.

1. People and Processes

a. Personnel

PG&E's Enterprise and Operational Risk Management Department resides in the Chief Risk Officer Organization and reports to the CRO. The CRO reports to PG&E's Chief Financial Officer. Led by the Director of EORM and Insurance, the EORM Department:

- Develops, implements and maintains enterprise-wide risk management guidance for the business.
- Partners with, and coaches, LOB risk managers and other key individuals to help identify, evaluate and mitigate risks.
- Provides process support, advice, and recommendations to ensure effective risk management within the business.
- Evaluates quality and tracks the implementation of mitigation activities.
- Leads the risk components (Session D as previously described in Chapter 1) of PG&E's Integrated Planning Process.

Each LOB also employs dedicated staff to implement the EORM Program standards and procedures within their own LOB. These employees are responsible for:

- Managing the LOB's risk register.
- Leading risk identification and evaluation workshops within the LOB.
- Working with subject matter experts (SME) to develop a risk response strategy, including alternatives analysis.
- Ensuring risk mitigation activities are implemented according to an agreed upon schedule.
- Developing metrics to track progress and assess the effectiveness of mitigations.

b. Committees

Committees serve an important oversight role within the EORM Program. At the Board of Directors, PG&E's audit committee is responsible for overseeing the EORM Program. Oversight of specific enterprise-level risks are addressed by the various Board committees, primarily the Nuclear, Operations and Safety Committee. Board

1 committees complete in-depth reviews of each enterprise-level risk at
2 least once every 12 months.

3 PG&E's Risk Policy Committee, comprised of PG&E's most senior
4 officers, annually reviews progress made by each LOB in implementing
5 the EORM Program and how PG&E's risk profile may be changing
6 over time.

7 In addition, each LOB has its own Risk and Compliance Committee.
8 Chaired by the most senior officer of the LOB, these Risk and
9 Compliance Committees typically meet at least four times per year and
10 are responsible for overseeing EORM activities within their LOB,
11 including reviews of risk assessments and progress made in
12 implementing mitigation activities.

13 **c. Monitoring and Metrics**

14 Once PG&E has identified and evaluated risks, determined which
15 ones must be mitigated further, and secured the resources to do so,
16 PG&E's standards require LOBs to monitor progress. Mitigations are
17 tracked and reported at regular LOB Risk and Compliance Committee
18 meetings and, on a quarterly basis, mitigation progress is discussed at
19 PG&E's Business Plan Review meeting chaired by the President. If
20 mitigation plans are delayed, an action plan is created.

21 PG&E's EORM standard includes identification of metrics to help
22 evaluate the results of mitigation plans and to detect if conditions are
23 changing in a way that would trigger a re-evaluation of the risk. These
24 metrics can help determine if the risk reduction plan has been
25 successful, or if the LOB needs to adjust its course. In many cases,
26 LOBs have developed and are monitoring these metrics. In other cases,
27 these metrics are under development or are being refined.

28 Lastly, the EORM team oversees the implementation of risk
29 response activities, and the LOBs' implementation of the EORM process
30 to ensure that standards are adhered to and progress is being made in
31 implementing the right mitigations to reduce the risk.

2. History of the Program

After establishing the standards and procedures for implementing EORM in 2011, PG&E's Risk and Audit Organization focused on implementing PG&E's vision of data-driven, risk-based decision making to support safe, reliable, and affordable electric and gas service that is integrated into PG&E's planning process and becomes the foundation for our regulatory rate cases.

In 2012, each LOB began working with the standards and procedures issued by the Chief Risk and Audit Officer and began to build LOB-specific risk registers. Through this work, PG&E began to use a common risk language and developed a deeper understanding of the risks PG&E faces and the drivers behind them.

The development of formal risk registers began in 2012, although at this time, the risk identification effort took place as a stand-alone process.

3. Integration With PG&E's Planning Processes

Once risk registers were established in each LOB, the focus shifted to integrating risk into how PG&E plans and prioritizes work. In 2013, PG&E held its first annual Session D, which is a senior management discussion of the top risks and compliance requirements facing PG&E. Session D—which began as a one-day meeting and has now expanded to two days—remains an annual event where the senior officers spend time discussing how top risks are being managed, where collaboration across LOBs is required, and where additional resources may be needed.

As one of the first steps in PG&E's Integrated Planning Process, Session D helps to develop an understanding of the top risks and compliance requirements and that knowledge informs PG&E's strategy and execution plans. As mentioned in Chapter 1, these strategy and execution plans are called Session 1 and Session 2, respectively, and are informed by Session D.

C. The Risk Evaluation Tool

1. Purpose

Central to PG&E's EORM Program was the development and use of PG&E's RET. The EORM team created RET as a means of facilitating an

1 apples-to-apples comparison of risks across LOBs, and to ensure that the
 2 risks that rise to the top of the priority list are those that have the largest
 3 potential of preventing PG&E from achieving its objective of providing safe,
 4 reliable, and affordable service to its customers. RET is used to establish a
 5 risk score for each risk and to establish a relative priority for discussion and
 6 management purposes. The RET score is a product of the potential impact
 7 and the frequency of a risk event. Each risk event is further described as a
 8 SME-proposed Probable Worst Case (P95)¹ scenario.

9 **2. Evolution of the Tool**

10 The initial RET Model (referred to as RET1) was modified in 2013 to
 11 produce RET2, and again in 2014 to create what is now referred to as
 12 RET2.1. The RET1 Model used a 3 × 3 matrix of high, medium, and low
 13 impact vs. high, medium, and low frequency. Additionally, the RET1
 14 algorithm was linear in nature and placed more emphasis on frequency than
 15 impact. Given concerns about the inability to correctly predict frequency,
 16 there was less confidence in the RET1 output. RET1 also resulted in
 17 less-than-desired differentiation of risks. That is, many risks were high
 18 impact, low frequency and occupied the same spot on the graphic output,
 19 described below as a “heat map,” limiting its usefulness in identifying areas
 20 of focus.

21 RET2 was developed to address these deficiencies. RET2 employed a
 22 7 × 7 matrix with additional specificity included in the criteria definitions.
 23 The algorithm was changed to a logarithmic scale to increase differentiation
 24 between risks and provide a better view of relative priority of risks. One year
 25 after implementing RET2, the EORM team revisited the definitions within the
 26 impact criteria and made adjustments to the descriptions in the “Reliability”
 27 impact category² to address LOB feedback. Although relative ranking did
 28 not change significantly between RET2 and RET2.1, the descriptions within
 29 Reliability better resonated with the LOBs using the tool.

1 The P95 scenario is based on the concept of plotting a range of outcomes along a distribution and choosing the 95th percentile event for the purposes of the risk discussion. In practice, for many risks—in the absence of quantitative support—PG&E identifies a reasonably probable worst case scenario rather than a range of outcomes.

2 The six impact categories in the RET model are described in the next section.

1 Additionally, RET2.1 included increased flexibility in the frequency
2 criteria. No longer are risk assessments limited to seven frequency
3 categories. If there are data to support a specific frequency, e.g., through
4 the use of probabilistic risk assessments, LOBs may use that data to
5 calculate the risk score.

6 **3. RET2.1**

7 **a. Inputs**

8 **1) Risk Score**

9 As mentioned above, the RET2.1 is used to establish a number,
10 called a risk score for each risk to establish relative priority for
11 discussion purposes. The RET2.1 score is a calculation based on a
12 SME discussion of the risk associated with the P95 scenario.
13 The potential impacts of the scenario across six impact categories
14 are then scored between 1 and 7 (7 being the greatest impact).
15 The six impact categories are: Safety, Environmental, Compliance,
16 Reliability, Trust and Financial. Once the impact is articulated,
17 a frequency or probability based on data and subject matter
18 expertise is assigned to each risk scenario. The algorithm
19 discussed in Attachment A is then applied to create a score
20 between 1 and 10,000.

21 **2) Risk Status**

22 When a risk is first identified, its status is denoted as "black"
23 indicating that a risk assessment must be completed to determine a
24 current residual risk score. During the risk assessment, the risk
25 owner will gather as much data and expertise on the subject to fully
26 characterize the risk drivers and controls and to score the risk.

27 Once the risk assessment is complete, the team determines
28 what level of control status should be recommended to the LOB
29 Risk and Compliance Committee. The following statuses are
30 available:

- 31 • Red – controls not adequate
- 32 • Amber – controls need strengthening
- 33 • Green – controls are adequate

1 A risk response plan is created for a risk with Red or Amber
2 status. The response plan includes a set of mitigations based on an
3 alternatives analysis to determine the best course of action to
4 reduce the risk and strengthen controls.

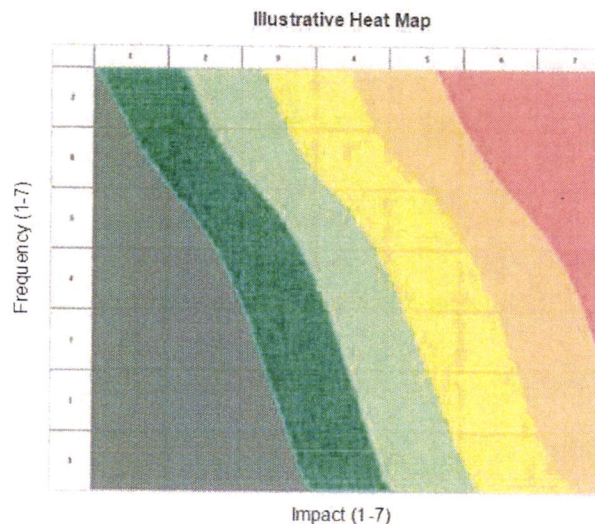
5 Over time, risk scores tend to be more static than the risk
6 status. The risk status should change toward green as the
7 mitigations are implemented and the controls are strengthened to an
8 adequate level. The risk score will only change if mitigations
9 fundamentally adjust the impact or frequency levels. In other words,
10 impact scores may change only if mitigations can physically prevent
11 or reduce the impact of the P95 scenario.

12 For example, if the P95 scenario risk is "a car accident which
13 may result in a death," a mitigant such as a physical divider between
14 the lanes could change the worst case probable P95 scenario from
15 fatality (head-on collision), to "a car accident which may result in a
16 serious injury (i.e., hitting the divider)." This will drop the impact
17 score and, likely the frequency as well. However, physical mitigants
18 are not always possible or practical. More often, mitigations are
19 more likely to impact the frequency side of the equation. For
20 instance, if a substation were to fail catastrophically, the impact
21 always would likely be catastrophic. But it may be possible to make
22 catastrophic failure less likely to occur by addressing the drivers of
23 the risk by maintaining, inspecting and replacing equipment, and
24 installing physical and cyber security measures.

25 **b. Output**

26 The output of RET 2.1 is a risk score for each risk. These scores
27 can be mapped on a "heat map" that graphically portrays the frequency
28 and impact scores. An illustrative heat map is shown in Figure 2-1.

FIGURE 2-1
PACIFIC GAS AND ELECTRIC COMPANY
ILLUSTRATIVE HEAT MAP



The y-axis on the heat map represents the frequency score, while the x-axis represents the impact score. The upper right hand corner of the heat map represents the highest risks; the lower left hand corner represents the lowest risks.

Because each LOB calculates its own risk scores, LOBs participate in calibration sessions to ensure consistency in scoring. SMEs and risk managers calibrate risks internal to their LOB and then the EORM team facilitates cross-LOB calibration sessions to ensure risks from different parts of the business are evaluated consistently. During each of these sessions, participants challenge assumptions and other inputs to risk scores to ensure there is alignment in how risks were evaluated. Once the calibration is complete, top risks to PG&E are selected for discussion in PG&E's Session D meeting.

4. Illustrative Example

An example helps to illustrate how RET 2.1 is used to create a risk score from a risk assessment. Consider the risk of "Failure of Distribution Overhead Primary Conductor," defined as:

1 The failure of or contact with energized electric distribution primary
 2 conductor may result in public or employee safety issues, significant
 3 environmental damage (fire), prolonged outages, or significant property
 4 damage. Energized wires down events are also considered part of this
 5 risk.

6 In this case, the P95 scenario is described as: A fatality due to
 7 unintentional third-party tree worker contact with an in place conductor, in
 8 conjunction with an investigation that finds compliance violations such as
 9 lack of signage, or insufficient clearance.

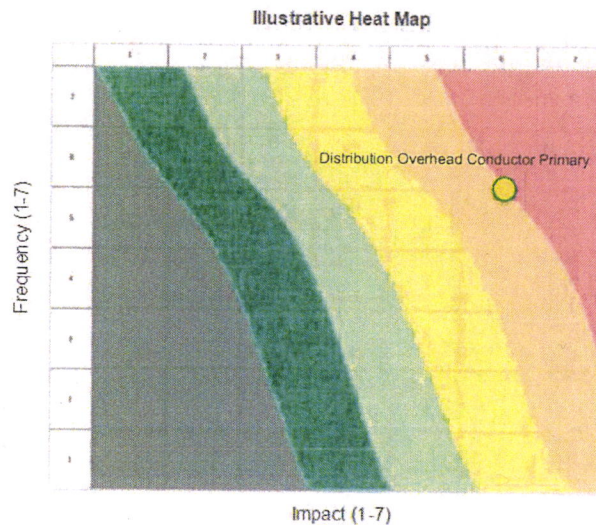
10 Once defined, the risk assessment team scores the risk by determining
 11 the impacts across the six impact categories (see Attachment B) and the
 12 frequency of such an event, and captures those determinations in the RET.
 13 In this case, the following scores were assigned:

- 14 • Safety impact: A 6 (Severe) impact captures the potential for a fatality
 15 to occur if contact was made with a distribution conductor. This is based
 16 on industry data and experience.
- 17 • Environmental impact: Under the scenario, there would be a
 18 1 (Negligible) impact on the environment.
- 19 • Compliance impact: The scenario assumes a compliance violation,
 20 which was rated as a 3 (Moderate) impact by the team based on
 21 industry experience.
- 22 • Reliability impact: The team reviewed outage history that would occur
 23 relative to the incident and determined that a 3 (Moderate) impact
 24 described the potential impact.
- 25 • Trust impact: The team determined a 2 (Minor) impact believing that
 26 there may be a single report of the event in a media outlet near the
 27 location of the incident, were it to occur.
- 28 • Financial impact: Available data supports a 4 (Major) impact.

29 Finally the team reviewed the scenario, the impact scores, and the data
 30 around the drivers and controls and determined that a frequency level of 5,
 31 or once every one to three years, was appropriate.

32 The six impact scores and the frequency level are then input into the
 33 tool, producing a final risk score of 408. The results of the scoring of the
 34 Overhead Conductor Risk can be displayed on the heat maps as shown.

FIGURE 2-2
PACIFIC GAS AND ELECTRIC COMPANY
MAPPED RISK SCORE FOR OVERHEAD CONDUCTOR



D. Areas for Focus and Improvement

1. Where PG&E Is Compared to Our Peers

Informed by industry benchmarking studies, the recommendations of the Independent Review Panel, and a third-party consultant, PG&E has moved from having an “industry standard” enterprise risk management program to having an “industry-leading” EORM Program. PG&E’s EORM Program is leading as evidenced by the risk-informed process of integrated planning and the widespread support for risk management in terms of personnel and management attention. Senior management regularly engages in discussions about risk, the state of controls and mitigation plans, and has increased the focus on developing and monitoring key measures that provide insight into how risks are being managed.

Today, PG&E is in a position where each LOB knows and understands the risks associated with their business and the relative importance of those risks with respect to the potential impact they could have on the achievement of objectives. And the LOBs use this information to inform strategies and resource allocation.

PG&E is proud of where it is today in terms of risk management. That is not to say there is no room for improvement.

2. Key Challenges

Effective risk management is an iterative process. As new data becomes available, operating and environmental conditions change, and technology improves, so does PG&E's ability to identify, evaluate, prioritize and mitigate risks. As does PG&E's ability to dedicate the appropriate amount of resources to manage our most important risks and to demonstrate the risk reduction benefits of the investments PG&E is making.

As PG&E identifies and integrates new data sources, it will develop a deeper, more granular understanding of the risks it faces and will be able to make better decisions as a result. When new information becomes available, risk management priorities may shift over time and it is important that PG&E remains dynamic in its response to that new information. This means that changes will be made to PG&E's plans and it will deploy resources accordingly. PG&E will identify risk mitigations that do not have the intended effect and will have to change course. PG&E will also identify new risks. As new information becomes available, risks that PG&E thought were important, may take a back seat to other, more pressing risks. PG&E's focus on data-driven decision making combined with the ability to pivot to address mitigation needs in a timely manner, will help PG&E operate in a safer and more efficient manner to the benefit of PG&E's customers, employees and the public.

a. Risk Quantification

As PG&E's EORM process has matured and progress has started to be documented, there has been an increased focus on data and quantification of risk to answer two basic questions: (1) Are we making progress in managing risk; and (2) How do we know?

In 2014, the EORM team in the Risk and Audit Organization implemented a risk management database to provide better oversight of risk management activities. Risk managers in each of the LOBs began identifying data needs and fulfilling them by gathering information from PG&E and industry sources, and analyzing it to better understand risks. The outcome of that work has been the development of metrics to track and manage risks. The availability of relevant data remains a challenge, however.

1 Often, it is not possible to tie mitigations directly to the absence of a
2 risk event. For example, PG&E has invested in a number of activities to
3 educate the public about the dangers of contact with energized
4 conductors—a top public safety risk included on the Electric Operations
5 Risk Register. It is very difficult to prove that someone did not touch an
6 energized conductor because they heard an advertisement on the radio,
7 or paid attention to a mobile pop-up advertisement while they were
8 shopping at Home Depot, or were already aware of the danger.

9 In some cases, data can be obtained to confirm that mitigations are
10 effective, but often PG&E must rely on the fact that it went through a
11 reasonable process to identify the right things to do and PG&E may not
12 be able to determine the effectiveness of an individual mitigation.

13 PG&E's goal remains to achieve the vision of data-driven,
14 risk-based decision making to support safe, reliable, and affordable
15 electric and gas service that is integrated into our planning process and
16 becomes the foundation for our rate cases. With the core foundational
17 components of an industry leading EORM program now in place, PG&E
18 is working on refining its approach and improving the maturity of the
19 process, with a focus on data and its application within EORM.

20 **b. Risk Tolerance**

21 Risk cannot be completely driven out of PG&E's—or any—business.
22 Today, risk tolerance is implicitly defined by the resources allocated to
23 manage specific risks. For example, PG&E has a robust program to
24 manage Wildfire Risk that consists of an award-winning vegetation
25 management program, equipment retrofits in high-risk areas, and
26 enhanced inspections. As a result, tree-related outages are in the
27 neighborhood of 17 per 1,000 miles, < 0.02 percent of trees in contact,
28 and there are a small number of wildfires caused by PG&E equipment
29 each year. It may be possible to drive tree-related outages to less
30 than 17 per 1,000 miles, or to have less than 0.02 percent of trees in
31 contact, but that would require a level of investment greater than what
32 PG&E is making today. With limited resources—PG&E cannot do
33 everything and must decide at what point it is okay to not mitigate the
34 risk further—tradeoff decisions must be made. For example, additional

1 investment in managing wildfire risk requires that customers either pay
 2 more, or accept higher risk in another area. PG&E is using the EORM
 3 process to help decide where to dedicate additional resources, and
 4 specifically where it has determined the risk has a current residual risk
 5 that is higher than desired. PG&E's Risk Informed Budget Allocation
 6 process, described in Chapter 3, also helps direct resources to projects
 7 and programs that have the largest risk reduction impact.

8 In the 2017 General Rate Case showing, PG&E will illustrate the
 9 projects and programs intended to address key risks in each operational
 10 LOB. By showing how these activities for which PG&E is requesting
 11 funding relate to risk reduction, intervenors and other stakeholders can
 12 see what risks are affected when reductions in specific programs or
 13 elimination of specific projects are recommended. As a result of this
 14 discussion, the Commission, intervenors, and PG&E will together define
 15 risk tolerance for PG&E.

16 **3. Areas of Future Activities**

17 PG&E's EORM focus for the foreseeable future can be broadly
 18 categorized as "Continuous Improvement." PG&E is focused on refining our
 19 current processes and improving the specific mechanics of risk
 20 management, i.e., how PG&E measures risk, the analysis PG&E does
 21 around alternatives for mitigation, and how PG&E calculates progress in risk
 22 management through the use of effectiveness metrics.

23 The EORM team also will continue to work with the LOBs to:

- 24 • Develop data plans for top risks, identifying what data PG&E needs,
 25 what data it has, and how to fill the gaps.
- 26 • Improve existing guidance and support for alternatives analysis and
 27 documenting decisions related to mitigation activities.
- 28 • Develop more effectiveness metrics that measure the impact of
 29 mitigation activities on risks or drivers of risk, and those that provide
 30 insight into how a risk is performing over time, i.e., is the risk increasing
 31 or decreasing?

32 With the basic elements of industry-leading risk management now in
 33 place, PG&E's focus is on collectively "upping our game" in the area of risk
 34 management. In support of this, the EORM team will continue to sponsor

1 expert training on specific risk management topics (annual training that is
2 provided to all risk managers across PG&E); conduct benchmarking and
3 share best practices from internal and external sources across LOBs; and
4 continue to promote a risk-aware culture through the continued inclusion of
5 risk in our Integrated Planning Process.

6 In the coming years, PG&E will consider analytical approaches for
7 quantifying risk reduction (meaning a reduction to the RET risk score).
8 To do so will require appropriate data, perhaps over an extended period of
9 time. This data will need to address (or avoid) the causation challenges
10 described above. Based on the outcome of this effort, PG&E hopes to
11 identify and implement techniques for quantifying risk reduction and their
12 applicability to specific risks.

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 2
ATTACHMENT A
RISK EVALUATION TOOL (RET) ALGORITHM

CHAPTER 2

ATTACHMENT A

RISK EVALUATION TOOL (RET) ALGORITHM

The algorithm used to calculate the risk score for each P95 risk scenario is divided into two parts. The first part assesses how often a risk event occurs (frequency). The second part assesses the significance of the overall impact of each risk event. The overall impact is the log of the resulting product of the weighted impact scores in the six categories: Safety; Environmental; Compliance; Reliability; Trust; and Financial.

The risk score is expressed by the following equation in the figure below, where $f(\text{Event})$ represents the frequency component of the algorithm and $I(\text{Event})$ represents the impact component:

RISK SCORE ALGORITHM

$$RS_{(\text{Event})} = k^{[0.5 \text{Log}(f_{(\text{Event})}) + I_{(\text{Event})}]}$$

Where	f is the number of occurrences expected over a one-year time horizon
And	I is the weighted impact of the event
And	k is the scalar and is a fixed value of 3.16 (the square root of 10)
And	0.5 is a standard factor used to calculate the variance of the aggregate impact of uncorrelated events.

The risk score calculation enables risk managers to calculate the “net risk impact” over a range of potential outcomes that occur at different frequencies. For example, gas leaks of various grades occur at various frequencies, and some of those leaks – if left unaddressed – could cause a range of impacts ranging from negligible to potentially catastrophic. The calculation enables risk managers to take that data and generate a risk score that contemplates the probable worst case, or a 95th percentile event.

“k” is a scalar used to calibrate the risk scores to cover a range of 1 to 10,000 to create adequate separation between risks for the purposes of facilitating a management discussion.

PG&E has mapped the six categories to our goals of safe, reliable and affordable service, and weighted them, as follows:

GOAL MAPPING TO RET IMPACT CATEGORIES

Company Goal	Company Goal Weight (%)	RET Impact Categories	RET Category Weight (%)
Safe	40%	Safety	30%
		Environmental	5
		Compliance	5
Reliable	30	Reliability	25
		Trust	5
Affordable	30	Financial	30
Total	100%		100%

The weighting shown above places more importance on certain objectives over others. To balance the importance of the weighting and the magnitude of the impact, the weightings are applied at the magnitude level (10^1) of the impact groups. Therefore, $I_{(Event)}$ can be expressed as shown in the figure below:

IMPACT WEIGHTING

$$I_{(Event)} = \text{Log} \left(\sum_{j=1}^6 w_j * 10^{I_j} \right)$$

Where I_j (Safety, Environmental, Reliability, Financial, Reputation, Compliance) is the impact level of an impact group of an event

And w_j (Safety, Environmental, Reliability, Financial, Reputation, Compliance) is the weight applied to the impact group of an event

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 2

ATTACHMENT B

RISK ASSESSMENT CATEGORIES

CHAPTER 2

ATTACHMENT B

RISK ASSESSMENT CATEGORIES

FREQUENCY DESCRIPTIONS

Frequency Level	Frequency Description	Frequency per Year
Common (7)	> 10 times per year	$F = > 10$
Regular (6)	1-10 times per year	$F = 1 - 10$
Frequent (5)	Once every 1-3 years	$F = 1 - 0.3$
Occasional (4)	Once every 3-10 years	$F = 0.3 - 0.1$
Infrequent (3)	Once every 10-30 years	$F = 0.1 - 0.033$
Rare (2)	Once every 30-100 years	$F = 0.033 - 0.01$
Remote (1)	Once every 100 + years	$F = < 0.01$

SAFETY IMPACT DESCRIPTIONS

Impact Level	Description
Catastrophic (7)	Fatalities: Many fatalities and life threatening injuries to the public or employees.
Severe (6)	Fatalities: Few fatalities and life threatening injuries to the public or employees.
Extensive (5)	Permanent/Serious Injuries or Illnesses: Many serious injuries or illnesses to the public or employees.
Major (4)	Permanent/Serious Injuries or Illnesses: Few serious injuries or illnesses to the public or employees.
Moderate (3)	Minor Injuries or illnesses: Minor injuries or illnesses to many public members or employees.
Minor (2)	Minor Injuries or illnesses: Minor injuries or illnesses to few public members or employees.
Negligible (1)	No injury or illness or up to an un-reported negligible injury.

ENVIRONMENTAL IMPACT DESCRIPTIONS

Impact Level	Description
Catastrophic (7)	<p>Duration: Permanent or long-term damage greater than 100 years; or</p> <p>Hazard Level/Toxicity: Release of toxic material with immediate, acute and irreversible impacts to surrounding environment; or</p> <p>Location: Event causes destruction of a place of international cultural significance; or</p> <p>Size: Event results in extinction of a species.</p>
Severe (6)	<p>Duration: Long-term damage between 11 years and 100 years; or</p> <p>Hazard Level/Toxicity: Release of toxic material with acute and long-term impacts to surrounding environment; or</p> <p>Location: Event causes destruction of a place of national cultural significance; or</p> <p>Size: Event results in elimination of a significant population of a protected species.</p>
Extensive (5)	<p>Duration: Medium-term damage between 2 and 10 years; or</p> <p>Hazard Level/Toxicity: Release of toxic material with a significant threat to the environment and/or release with medium-term reversible impact; or</p> <p>Location: Event causes destruction of a place of regional cultural significance; or</p> <p>Size: Event results in harm to multiple individuals of a protected species.</p>
Major (4)	<p>Duration: Short-term damage of up to 2 years; or</p> <p>Hazard Level/Toxicity: Release of material with a significant threat to the environment and/or release with short-term reversible impact; or</p> <p>Location: Event causes destruction of an individual cultural site; or</p> <p>Size: Event results in harm to a single individual of a protected species.</p>
Moderate (3)	<p>Duration: Short-term damage of a few months; or</p> <p>Hazard Level/Toxicity: Release of material with a moderate threat to the environment and/or release with short-term reversible impact; or</p> <p>Location: Event causes damage to an individual cultural site; or</p> <p>Size: Event results in damage to the known habitat of a protected species.</p>
Minor (2)	<p>Duration: Immediately correctable; or contained within a small area.</p>
Negligible (1)	<p>Negligible to no damage to the environment.</p>

COMPLIANCE IMPACT DESCRIPTIONS

Impact Level	Description
Catastrophic (7)	Adverse Regulatory Actions: Action resulting in closure, split, or sale of PG&E.
Severe (6)	Adverse Regulatory Actions: Cease and desist orders are delivered by regulators. Critical assets and facilities are forced by regulators to be shutdown.
Extensive (5)	<p>Adverse Regulatory Actions: Governmental, regulator investigations, and enforcement actions, lasting longer than a year. Violations that result in multiple large non-financial sanctions; or</p> <p>Increased Regulatory Oversight: Regulators force the removal and replacement of management positions. Regulators begin Company monitoring activities.</p>
Major (4)	<p>Adverse Regulatory Actions: Violations that result in significant fines or penalties above and beyond what is codified or a regulator enforces non-financial sanctions; or</p> <p>Expanded Regulations: Significant new and updated regulations are enacted as a result of an event</p>
Moderate (3)	Adverse Regulatory Actions: Violations that result in fines or penalties
Minor (2)	Adverse Regulatory Actions: Self-reported or regulator identified violations with no fines or penalties.
Negligible (1)	No compliance impact up to an administrative impact.

RELIABILITY IMPACT DESCRIPTIONS

Impact Level	Description
Catastrophic (7)	<p>Location: Impacts an entire metropolitan area, including critical customers, or is systemwide; and</p> <p>Duration: Disruption of service of more than a year due to a permanent loss to a nuclear facility, hydro facility, critical gas or electric asset; or</p> <p>Customer Impact: Unplanned outage (net of replacement) impacts more than 1 million customers; or</p> <p>EO: 14 million total customer hours, or more than 1 million mega-watt hours (MWh) total load</p> <p>GO: 10 million total customer hours, or reduction of capacity greater than or equal to 2.1 Bcf/d for seven months</p> <p>ES: 40 percent of utility-owned generating fleet unavailable for one year</p>
Severe (6)	<p>Location: Impacts multiple critical locations and critical customers; or</p> <p>Duration: Substantial disruption of service greater than 100 days; or</p> <p>Customer Impact: Unplanned outage (net of replacement) impacts more than 100k customers; or</p> <p>EO: 1.2 million total customer hours, or more than 100 thousand MWh total load</p> <p>GO: one million total customer hours, or reduction of capacity greater than 1.2 billion cubic feet per day (Bcf/d), but less than for seven months</p> <p>ES: 20 percent of utility-owned generating fleet unavailable for one year</p>
Extensive (5)	<p>Location: Impacts multiple critical locations or customers; or</p> <p>Duration: Disruption of service greater than 10 days; or</p> <p>Customer Impact: Unplanned outage (net of replacement) impacts more than 10k customers; or</p> <p>EO: 100 thousand total customer hours, or more than 10 thousand MWh total load;</p> <p>GO: 100 thousand total customer hours, or reduction of capacity greater than or equal to 0.6 Bcf/d for seven months</p> <p>ES: 10 percent of utility-owned generating fleet unavailable for one year</p>
Major (4)	<p>Location: Impacts a single critical location; or</p> <p>Duration: Disruption of service greater than one day; or</p> <p>Customer Impact: Unplanned outage (net of replacement) impacts more than one thousand customers; or</p> <p>EO: 8 thousand total customer hours, or more than one thousand MWh total load</p> <p>GO: 10 thousand total customer hours, or reduction of capacity greater than or equal to 0.3 Bcf/d for seven months</p> <p>ES: 2 percent of utility-owned generating fleet unavailable for one year</p>

**RELIABILITY IMPACT DESCRIPTIONS
(CONTINUED)**

Moderate (3)	<p>Location: Impacts a small area with no disruption of service to critical locations; or</p> <p>Duration: Disruption of service of up to one full day; or</p> <p>Customer Impact: Unplanned outage (net of replacement) impacts more than 100 customers; or</p> <p>EO: 600 total customer hours, or more than 100 MWh total load</p> <p>GO: one thousand total customer hours, or reduction of capacity greater than or equal to 0.1 Bcf/d for seven months</p> <p>ES: one percent of utility-owned generating fleet unavailable for one year</p>
Minor (2)	<p>Location: Impacts a small localized area with no disruption of service to critical locations; or</p> <p>Duration: Disruption of up to three hours; or</p> <p>Customer Impact: Unplanned outage (net of replacement) impacts less than 100 customers; or</p> <p>EO: Less than 600 total customer hours, or less than 100 MWh total load;</p> <p>GO: Less than one thousand total customer hours, or reduction of capacity greater than or equal to 0.01 Bcf/d for seven months</p> <p>ES: 0.1 percent of utility-owned generating fleet unavailable for one year</p>
Negligible (1)	<p>No reliability to negligible impacts.</p>

TRUST IMPACT DESCRIPTIONS

Impact Level	Description
Catastrophic (7)	<p>Duration: Ongoing impacts for more than 10 years; and</p> <p>Media: Event is heavily reported from local through international media outlets and social media channels, with influential third parties dominating media coverage; various inaccurate information is widely reported; or</p> <p>Political: Devastating nationwide broad-based political pressure demanding intense long term outreach to policymakers and key stakeholders; or</p> <p>Customer Satisfaction: Greater than 50 percent loss of customer satisfaction through survey results; or</p> <p>Company Brand: Relationships are severed and trust is completely lost</p>
Severe (6)	<p>Duration: Ongoing impacts between 1 and 10 years; and</p> <p>Media: Event is heavily reported from local through national media outlets and social media channels, with influential third parties dominating media coverage, and various inaccurate information is widely reported; or</p> <p>Political: Extreme statewide broad-based political pressure demanding concentrated outreach to policymakers and key stakeholders; or</p> <p>Customer Satisfaction: 21-50 percent loss of customer satisfaction through survey results; or</p> <p>Company Brand: Event creates outrage and trust can't be fully recovered</p>
Extensive (5)	<p>Duration: Ongoing impacts between one quarter and one year; or</p> <p>Media: Event is widely reported in national media outlets and social media channels, with influential third parties dominating media coverage, and inaccurate information is reported; or</p> <p>Political: Severe territory wide political pressure demanding extensive outreach to policymakers and key stakeholders; or</p> <p>Customer Satisfaction: 4-20 percent loss of customer satisfaction through survey results; or</p> <p>Company Brand: Event creates serious concerns of company management while trust is severely diminished</p>
Major (4)	<p>Duration: Ongoing impacts between one week and one quarter; or</p> <p>Media: Event is heavily reported in local through national media outlets and social media channels, with influential third parties dominating media coverage, and inaccurate information is reported; or</p> <p>Political: Major territory wide political pressure demanding major outreach to policymakers and key stakeholders; or</p> <p>Customer Satisfaction: one to three percent loss of customer satisfaction through survey results; or</p> <p>Company Brand: Management is questioned and trust is diminished</p>

**TRUST IMPACT DESCRIPTIONS
(CONTINUED)**

<p>Moderate (3)</p>	<p>Duration: Short term coverage for up to one week.</p> <p>Media: Event is reported in multiple local media outlets and/or social media channels, with limited exposure beyond the coverage area; or</p> <p>Political: Moderate county level political pressure demanding moderate outreach to policymakers and key stakeholders; or</p> <p>Customer Satisfaction: Less than one percent loss of customer satisfaction through survey results; or</p> <p>Company Brand: Event isn't anticipated and trust is impacted; or</p>
<p>Minor (2)</p>	<p>Duration: Single report of the event.</p> <p>Media: Event is reported in a single local media outlet in the location where the event took place; or</p> <p>Political: Minimal political pressure demanding minimal outreach to policymakers and key stakeholders; or</p>
<p>Negligible (1)</p>	<p>No known reputation impact reported to a non-featured report.</p>

FINANCIAL IMPACT DESCRIPTIONS

Impact Level	Description
Catastrophic (7)	<p>Financial Costs: Damage to third-party properties, loss of assets and facilities, fines, lawsuits, restitution, remediation, restoration, cost of replacement energy, redistributed customer costs, amounting to a total impact > \$5 billion in costs; or</p> <p>Capital/Liquidity: Ability to raise capital significantly impacted. Dramatic decrease in stock price of more than 50 percent for more than one year; or</p> <p>Bankruptcy: Risk of bankruptcy is imminent.</p>
Severe (6)	<p>Financial Costs: Damage to third-party properties, loss of assets and facilities, fines, lawsuits, restitution, remediation, restoration, cost of replacement energy, redistributed customer costs, amounting to a total impact between \$500 million and \$5 billion in costs; or</p> <p>Capital/Liquidity: Ability to raise capital is challenged. Dramatic decrease in stock price of more than 25 percent for more than one year.</p>
Extensive (5)	<p>Financial Costs: Damage to third-party properties, loss of assets and facilities, fines, lawsuits, restitution, remediation, restoration, cost of replacement energy, redistributed customer costs, amounting to a total impact between \$50 million and \$500 million in costs; or</p> <p>Capital/Liquidity: Ability to raise capital is hindered. Dramatic decrease in stock price of more than 10 percent for up to one year.</p>
Major (4)	<p>Financial Costs: Damage to third-party properties, loss of assets and facilities, fines, lawsuits, restitution, remediation, restoration, cost of replacement energy, redistributed customer costs, amounting to a total impact between \$5 million and \$50 million in costs.</p>
Moderate (3)	<p>Financial Costs: Damage to third-party properties, loss of assets and facilities, fines, lawsuits, restitution, remediation, restoration, cost of replacement energy, redistributed customer costs, amounting to a total impact between \$500 thousand and \$5 million in costs.</p>
Minor (2)	<p>Financial Costs: Damage to third-party properties, loss of assets and facilities, fines, lawsuits, restitution, remediation, restoration, cost of replacement energy, redistributed customer costs, amounting to a total impact between \$50 thousand and \$500 thousand in costs.</p>
Negligible (1)	<p>Financial Costs: Damage to third-party properties, loss of assets and facilities, fines, lawsuits, restitution, remediation, restoration, cost of replacement energy, redistributed customer costs, amounting to a total impact of less than \$50 thousand in costs.</p>

Exhibit 2036

J. MARKLAND

10/15/18

Danielle D. Cruzat
CSR No. 13650

Fire Ignitions^{NEW}

Definition and Calculation

The number of powerline-involved fire incidents annually reportable to the CPUC per Decision 14-02-015. A reportable fire incident includes all of the following: 1) Ignition is associated with PG&E powerlines and 2) something other than PG&E facilities burned and 3) the resulting fire traveled more than one meter from the ignition point. *[No change in metric definition or calculation from 2016.]*

Mission

Reduce fire ignitions of consequence through targeted, data driven improvements for facility management, maintenance and operation

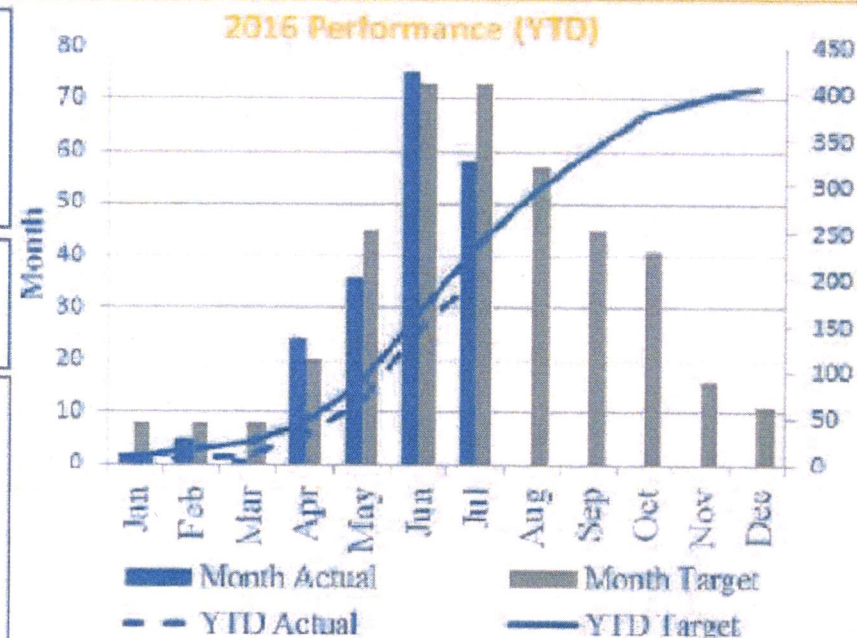
Targets and Approach

2015 – Baseline dataset (434 Ignitions). Analyze, investigate, learn, report

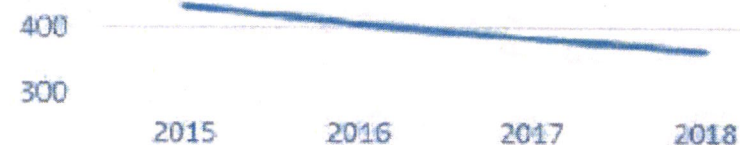
2016 – Learn & Improve (405 Ignition Target). Increase awareness of ignitions, causes and reduction opportunities. Identify high risk areas in service territory. Benchmark with California IOU's

2017 – Implement & Improve (385 Ignition Target). Prioritize specific work in highest risk areas of service territory to reduce potential ignitions. Improve identifications, reporting and corrective action of hazards

2018 – Maintain & Improve (365 Ignition Target) Broadened prioritization of work in highest risk areas of service territory. Benchmark with California IOU's



YoY Performance Trend	2015 EOY Act	2016 EOY Est	2017 Target	2018 Target
Performance	434	405	385	365



Future Strategy

- Detailed investigation and reporting of CPUC reportable incidents
- Improved holistic data collection for all facility related ignitions as near hits
- Increase visibility and increase workforce awareness to reduce ignition risks

Drivers of Target Performance

Milestones / Activities	Date	Owner
Holistic review of 2015-2016 Fire Incidents	Oct 21, 2016	TLMX
2017 Wildfire Council Meeting and Incident Reporting Benchmark	November 2016	TLMX
Report fire incident analysis and trends to involved programs. Feedback for data quality improvement.	Nov 25, 2016	TLMX
Submittal of CPUC annual report for 2016 data	April 1, 2017	CLF8

For internal discussion purposes only